

MISSOURI CONSERVATIONIST

VOLUME 80, ISSUE 3, MARCH 2019
SERVING NATURE & YOU



KEEP WILD ANIMALS WILD



City or countryside, Missouri's wild animals are your neighbors, and finding a young animal alone doesn't mean it needs help. In spring and early summer, deer and other wild animals are sometimes left alone for long periods while their parents look for food. If you see young wildlife in the outdoors, don't assume it is abandoned or hurt.

LEAVE YOUNG WILDLIFE ALONE.

If you believe an animal is in distress,
notify the closest Missouri Department of Conservation office.

MissouriConservation.gov

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**Northern
spring peeper**

MISSOURI
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ON THE COVER Coyote

 **KARL UMBRIAC**
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Inbox



Letters to the Editor

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DECEMBER ISSUE

We just wanted you to know how great the December issue was. They are all interesting and informative, but this one topped the list. Thank you for all you do.

Reta Smith
Kansas City

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CONNECTING THROUGH CONSERVATION

The *Missouri Conservationist* has been a wonderful reconnect for me. I left for the West immediately after my 1967 Poplar Bluff High School graduation. Last year, my family sent me a subscription. The combination of great photography, coupled with interesting and educational stories and information, takes me back to my childhood days fishing and swimming around Black River and Lake Wappapello. The thought of elk wandering near my southeast Missouri hometown is terrific. I plan to be back in the area next year and hope to spot them. Keep up the good work.

Mike Laughlin Grass Valley CA

I want you to know that I'm totally a city girl; concrete is my natural habitat. But I picked up the *Missouri Conservationist* in the doctor's waiting room, and by the end of the first article, I was hooked. Well-written, interesting features, beautiful photography, informative illustrations — I really liked it, and I'm watching for the next issue. Thanks for a great publication.

Martha Darling Bridgeton

EAGLE EYE

Just finished reading the January issue. My grown daughter, home from Boston over the holidays, and I were thrilled when we came upon seven bald eagles in a field as we drove into St. Louis from Marthasville. Three were on the ground paying close attention to what appeared to be a deer carcass and the other four were in surrounding trees. We were awestruck at their sheer size and to see so many, so close. The following day we saw three again in the same place. And amazingly, two days later, we came upon the same scene, but with only one eagle sharing his meal with two turkey vultures.

Lynn Weber via email

LOVE FOR WILDLIFE

In 2017, I started rearing monarchs. I reared 57 with 200 milkweed plants. In 2018, along with the same 200 milkweed plants, we sowed 250,000 wildflower seeds in an 800-square-foot garden. That year, I reared 323 monarchs. I tagged 197 for their migration to Mexico. Milkweed plants are not enough to keep the monarchs close. You need wildflowers. This year we plan to double our wildflower garden and add to our milkweed plant population.

Dick Thorsen Bevier

We have subscribed to the *Missouri Conservationist* for years and have had contact with the department with wildlife questions or statements. We love everything wildlife. We have raised monarchs to offset their decline, fed various bird species, and our little country acre has been host to lots of wildlife. I enjoy every one of your *Up Front* articles. The life experiences you share are very interesting and heartwarming. Keep up the good work and thank you for what you do for Missouri conservation.

Carlene Mease via email

LOVE FOR THE CONSERVATIONIST

My dad, who is 90, and I read the *Missouri Conservationist* from cover to cover together. And discuss everything in it. I'm glad the *Missouri Conservationist* is still available in hard format as he would not like reading the articles off a computer screen.

Nancy Confer Fenton

As a farmland owner and conservationist, I want to heap praise on your photographers Noppadol Paothong and David Stonner. Their photographs are truly beautiful and professionally done. What talent! Thank you for publishing this fine, informative magazine for our great state.

Larry H. Ross Unionville



Monarch chrysalis

NOPPADOL PAOTHONG



Want to see your photos in the *Missouri Conservationist*?

Share your photos on Flickr at [flickr.com/groups/mdcreaderphotos-2019/](https://www.flickr.com/groups/mdcreaderphotos-2019/), email Readerphoto@mdc.mo.gov, or include the hashtag #mdcdiscovernature on your Instagram photos.



1 | Killdeer egg by Sandra Cox, via Flickr

2 | Kids at outdoor play by mobackroadadventures, via Instagram

3 | St. Francis River Valley by Curtis Vail, via email



MISSOURI CONSERVATION COMMISSIONERS



Don Bedell



Marilynn Bradford



David Murphy



Up Front

with Sara Parker Pauley

✱ Nestled beside the wood stove, I watched an array of birds, including cardinals, chickadees, and finches, ravenously attack the feeders outside. The skies had produced a sheet of ice earlier that morning, so I found myself all the more eager for spring's glorious migrating songbirds. A recent report confirms the widespread interest in birds. According to the report, bird watchers in the U.S. generate more than \$41 billion annually in economic benefit. (Learn about Missouri's Breeding Bird Survey on Page 4.)

Like all conservation efforts, the success of bird conservation is one of combined resources from individuals and organizations, like the National Audubon Society. Recently, Missouri's own John L. Morris, founder of Bass Pro Shops, was awarded one of Audubon's most esteemed national honors, The Audubon Medal, for his many conservation efforts over his lifetime.

Morris shared these words: "What many people don't realize is that John James Audubon and President Theodore Roosevelt were not only heroes in conservation, they were also sportsmen and hunters. I hope they are both looking down, smiling and happy, that we are all here as one united, inclusive family working with passion to carry on the important mission they outlined for us many years ago — to be good stewards of God's creation and to protect the wild places so that future generations, our kids and grandkids, can have the same opportunities we have to experience the wonders of the natural world."

Well said, Mr. Morris. And congratulations.

Sara Parker Pauley

SARA PARKER PAULEY, DIRECTOR
SARA.PAULEY@MDC.MO.GOV

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Each month, we highlight research MDC uses to improve fish, forest, and wildlife management.

BIRD CONSERVATION

Breeding Bird Survey

✦ If you can identify every bird in your area by sight and sound, Janet Haslerig has a mission for you: Help with Missouri's annual North American Breeding Bird Survey (BBS) this summer.

"Bird populations are subjected to numerous, widespread threats including habitat loss, habitat fragmentation, land-use changes, chemical contaminants, and climate change," said Haslerig, resource scientist in MDC's Resource Science Division. "If significant declines are detected through BBS data, their causes can then be identified and appropriate actions taken to reverse them before populations reach critically low levels."

The BBS is a long-term, large-scale, international bird monitoring program that started in 1966. It tracks the status and trends of North American bird populations. Each year during the height of the bird-breeding season for most of the U.S., BBS volunteers collect bird population data along roadside survey routes. Each survey route is 24 ½ miles, with stops at ½-mile intervals. At each stop, volunteers conduct three-minute point counts. They record data for the bird species and numbers they see or hear within a



Surveyors look for birds like this black-and-white warbler, which breeds in Missouri's forests and woodlands.

Annual international effort helps managers track and better conserve migratory birds

quarter-mile radius. Surveys must start a half-hour before sunrise, and they take about five hours to complete.

Haslerig hopes surveyors will commit to several years of collecting data on the same route. "It helps with the consistency in data collection," she said. "Volunteers also get familiar with the routes and have better ideas what birds they will encounter. And it's fun!"

Volunteers must have the ability to identify all breeding birds on their routes by sight and sound. They must also successfully complete an online BBS methodology training program.

WARBLER: © LUMICKINNE | DREAMSTIME.COM; SURVEY MAP: US GEOLOGICAL SURVEY, PATUENT WILDLIFE RESEARCH CENTER, NORTH AMERICAN BREEDING BIRD SURVEY; BIRDER: NOPPADOL PAOTHONG

Breeding Bird Survey at a Glance

Survey Range
From Central Mexico to Canada



80
Number of Missouri Survey Routes

Vacant Routes for 2019

- 1 Norborne
- 2 Doe Run
- 3 Cassville



Value of Data

Helps Canadian, American, and Mexican habitat managers track North American migratory bird populations and adjust management as needed

How to Volunteer

Email Janet.Haslerig@mdc.mo.gov



In Brief

News and updates from MDC



SPRING TURKEY HUNTING INCLUDES NONTOXIC-SHOT REQUIREMENTS

ADDITIONAL 16 CONSERVATION AREAS REQUIRE NONTOXIC SHOT FOR HUNTING WITH SHOTGUNS

Spring turkey hunting youth weekend will be April 6 and 7, with the regular spring season running April 15 through May 5. Detailed information on spring turkey hunting is available in MDC's 2019

Spring Turkey Hunting Regulations and Information booklet, available where permits are sold. Learn more about turkey hunting in Missouri at short.mdc.mo.gov/ZZy.



➔ The Missouri Conservation Commission added 16 new areas to the list of places where nontoxic shot is required for all hunting with a shotgun – including turkey hunting. These additions bring the total number of areas requiring nontoxic shot to 37.

The commission also approved regulations that require the use of nontoxic shot for hunting doves on 20 new conservation areas that have heavy, concentrated dove hunting. The new regulations became effective March 1.

The 16 conservation areas that require nontoxic shot for all hunting are: Aspinwall Bend, Church Farm, Corning, Deroir Bend, Diana Bend, Franklin Island, Frost Island, Lower Hamburg Bend, Nishnabotna, Perry (Ralph and Martha), Platte Falls, Plowboy Bend, Thurnau (H. F.), Rose Pond, Rush Bottom, and Wolf Creek.

The 16 areas have been added to these 21 conservation areas that already require nontoxic shot for hunting with shotguns: B. K. Leach, Bob Brown, Black Island, Columbia Bottom, Cooley Lake, Coon Island, Duck Creek, Eagle Bluffs, Fountain Grove, Four Rivers, Grand Pass, Little Bean Marsh, Little River, Marais Temps Clair, Montrose, Nodaway Valley, Otter Slough, Schell-Osage, Settle's Ford, Ted Shanks, and Ten Mile Pond.

The 20 conservation areas that now require nontoxic shot for dove hunting are: Bilby Ranch Lake, Bois D'Arc, Busch (August A.), Crowley's Ridge, Davisdale, Harmony Mission Lake, Lamine River, Logan (William R.), Maintz Wildlife Preserve, Pacific Palisades, Park (Guy B.), Peabody, Pony Express Lake, Reed (James A.) Memorial Wildlife Area, Reform, Talbot (Robert E.), Truman Reservoir Management Lands (Bethlehem), Weldon Spring, Whetstone Creek, and White (William G. and Erma Parke) Memorial Wildlife Area.

(continued on Page 6)

NONTOXIC-SHOT REQUIREMENTS

(continued from Page 5)

Lead is a well-known toxin that hurts the health of both people and wildlife. Research shows that doves, waterfowl, and many other species of birds can suffer from lead poisoning after consuming lead pellets from spent shotgun shells. Lead poisoning can be fatal to birds and other wildlife, including bald eagles that feed on waterfowl with lead shot in the carcasses.

Waterfowl hunters have been required by federal law to use nontoxic shot since 1991 and must use nontoxic shot for all duck, goose, and coot hunting in Missouri regardless of where they are hunting. Requiring the use of nontoxic shot has reduced the incidences of lead poisoning from lead-shot ingestion by birds and other wildlife.

MDC CHANGES ELIGIBILITY FOR FREE TURKEY AND DEER LANDOWNER PERMITS

MDC now limits its free landowner permits for deer and turkey hunting to qualifying resident landowners and members of their immediate households age 6 years or older. Those who lease land no longer qualify for the free permits. Learn more at short.mdc.mo.gov/ZGH.

MDC BUSTS ONE OF STATE'S LARGEST-EVER POACHING RINGS

Tips from the public to MDC's Operation Game Thief hotline helped lead to the arrests and convictions of several Missourians for a long list of illegal fish and game activities, including the poaching of hundreds of deer over several years. Many of the deer were trophy bucks taken for just their heads, leaving their bodies to waste.

MDC agents worked with numerous state, federal, and Canadian wildlife officers over several years to tie 14 Missouri residents to more than 230 charges that occurred in 11 Missouri counties. Three suspects were tied to additional wildlife violations in Kansas, Nebraska, and Canada. Two suspects were tied to Federal Lacey Act Wildlife violations that occurred in Kansas, Nebraska, and Canada.

For further details, visit the MDC Newsroom at short.mdc.mo.gov/ZGr.

If you see a wildlife violation, report it through the Operation Game Thief Hotline at 800-392-1111 or call your local conservation agent.

Ask MDC

Got a Question for Ask MDC?

Send it to AskMDC@mdc.mo.gov or call 573-522-4115, ext. 3848.

Q: What is the best time of year to raise a purple martin house?

→ You can expect purple martins to arrive in Missouri the third week of March, so now is a great time to invest in a purple martin house. Though originally cavity nesters, martins now rely almost entirely on the nest boxes provided by humans.

If the weather is mild, an adult pair will begin building a nest within days of selecting a compartment. The flat nest is constructed of soft, spongy plants and grasses. They sometimes add mud to the front entrance, and they exhibit a unique bird behavior by adding green leaves to the nest bowl, particularly when egg laying begins. The young fly from the nest when they are about a month old.

For more information, visit short.mdc.mo.gov/ZGE.

Q: I hear people say that because of a colder-than-normal winter, we may have fewer problems with insect pests this summer. Is there any truth to this?

→ A cold winter is unlikely to set back pest populations the following summer. Many insect species are well-adapted to Missouri's winter weather. Some hide in sheltered places like under tree bark or buried



Purple martins

in the soil, while others invite themselves into warmer spots like attics and crawlspaces. Some overwinter as eggs while others produce chemicals in their bodies that keep them from freezing. Whatever their method, most insects are well-equipped to tolerate temperatures lower than we ever experience in Missouri.

While extremely cold winter temperatures may not reduce insect pest populations, long spells of abnormally warm winter weather can decrease some species' numbers. Insects transition to an overwintering stage when we have a slow progression from warm fall days into colder nights and eventually cold winter temperatures. If a string of several warm winter days and mild nights occurs, some insects may be prematurely coaxed out of

PURPLE MARTINS: DAVID STONNER; MUSSEL: RITA VOGT

dormancy, losing some of their cold tolerance. When struck by a sudden temperature drop well below freezing, many of these insects won't survive. Fortunately for the bugs, a few warm winter afternoons in a row won't be enough to wake them up, so this isn't a common occurrence.

Q: I found many of these empty shells in the Meramec River. Can you help me identify them?

→ This is a threeridge mussel (*Amblema plicata*), one of Missouri's common mussel species. They tend to have moderately thick, solid shells with at least three — but often more — concentric ridges. The inner shell layer, or nacre, is white, mottled, or sometimes iridescent blue at the posterior end.

Threeridge mussels can be found in rivers and lakes partly buried in a firm mixture of cobble, gravel, sand, and silt. Mussels prefer flowing water, and they survive in stream areas that are deep enough to be submerged even during drought.

Living mussels are secretive and seldom seen, but they provide vital



Threeridge mussel

functions in aquatic ecosystems. They are an important source of food for a variety of animals, including fish and small mammals. They filter algae, bacteria, and other particles from the water, improving water quality and cycling nutrients and energy in streams and lakes. Because many mussel species are sensitive to habitat disruption and pollution, they are good indicators of the overall health of aquatic ecosystems and water quality.

To receive a free copy of *A Guide to Missouri's Freshwater Mussels*, call 573-522-0108 or email pubstaff@mdc.mo.gov.

What IS it?

Can you guess this month's natural wonder?

The answer is on Page 9.



Andy Bullock

HENRY COUNTY
CONSERVATION AGENT

offers this month's

AGENT ADVICE

There's no better way to kick off spring than with a fishing trip. Before you head out to wet your line, all anglers should remember to keep their catch separate and identifiable. Every angler must adhere to a length and daily limit. Those limits vary depending on location and species. Refer to the *Wildlife Code of Missouri* for more information. Each angler is required to keep his or her catch separated from fellow anglers and be able to identify his or her fish. If there is just one live well in a vessel, use various colored stringers or a separate basket or bucket to store fish. It's always a good day to fish in Missouri. Taking these simple steps will make it even better!

WE ARE CONSERVATION

Spotlight on
people and partners

Paul and Kathy Breitenstein

→ Paul, a retired captain of the Cape Girardeau Fire Department, and Kathy, a school nurse, work to improve their Bollinger County property. They use timber stand improvement methods in their forest, and they plant native warm-season grasses and wildflowers and use prescribed fire to enhance their woodlands and grasslands. They also control invasive species.

They go the extra mile

"They hold habitat workshops to showcase practices and share their experience using federal and state cost-share programs," said Quail Forever Farm Bill Biologist Wes Buchheit. "The Breitensteins are eager to share their experiences, knowledge, and love of nature with other landowners," said MDC Priority Habitat Coordinator Roger Frazier.

In their own words

"Once I realized what a magnet the natives were for wildlife," said Kathy, "I readily began replacing some of my nonnatives!" Paul agreed. "We get so excited because it's always changing. We enjoy walking the fields and seeing what's new."

by Cliff White



HUNTERS HARVEST MORE THAN 290,300 DEER

The 2018-2019 deer season ended with a total harvest of 290,339 deer. Top counties for the season were Franklin with 5,826 deer harvested, Callaway with 5,545, and Howell with 5,350. Hunters harvested 284,477 deer during the 2017-2018 season.

Deer hunting ended with the close of archery season on Jan. 15. Hunters checked a record 54,447 deer during archery season. Fall archery turkey hunting also ended Jan. 15, with 2,095 turkeys harvested. For more deer and turkey harvest data from the current season, visit short.mdc.mo.gov/Z3g.

MDC reported eight firearms-related hunting incidents during the 2018 fall deer and turkey seasons. Three were fatalities. Two were considered incidental to hunting, occurring at camp, and one was a self-inflicted incident in the field. Of the five nonfatal incidents, four were self-inflicted, and the fifth occurred when a shooter shot a victim while swinging on game.

SCHOOL TRASH CAN-DECORATING CONTEST ENDS MARCH 15

MDC and the Missouri Department of Transportation (MoDOT) invite Missouri public, private, and home-school students in grades K-8 to help fight litter in the Show-Me State — while having creative and educational fun — by participating in the 2019 "Yes You CAN Make Missouri Litter-Free" trash can-decorating contest. The annual contest is sponsored by MDC and MoDOT as part of the state's "No MOre Trash!" statewide litter campaign.

The contest encourages school classes and school groups to join in the fight against litter by decorating and displaying a large trash can with the "No MOre Trash!" logo and a litter-prevention message using a variety of creative media. Schools may submit one entry in each competition category: K-2, 3-5, and 6-8. Entries are judged based on creativity, adherence to contest rules, and effective use of theme and logo.

First-place winners from each competition category receive \$200 awarded to the sponsoring schools. All first-place winners are then eligible for a grand prize trophy and \$600 awarded to the sponsoring school.

There is no entry fee for the contest. Participating school groups must submit a completed entry form online with up to three photos to nomoretrash.org by Friday, March 15.



Third graders at Logan-Rogersville Elementary won the 2018 trash can-decorating contest with their entry, "Stache the Trash!"

WHAT IS IT? EASTERN SPINY SOFTSHELL

Eastern spiny softshells (*Apalone spinifera spinifera*) lack hard shells, but they defend themselves with strong jaws and sharp claws. They also are swift swimmers. Their upper shells have small bumps along the front ridge. Their shell color indicates age and sex. Males and young turtles have an olive or grayish-tan upper shell with small black dots. Adult females have a dark olive or tan upper shell with brown and gray blotches.



DEER: JIM RATHER; SPINY SOFTSHELL TURTLE: DAVID STONNER

What's **your** conservation superpower?



NATURE IN MY BACKYARD

MISADVENTURES IN
LANDSCAPING FOR WILDLIFE

by Larry Archer

With the water feature operating, native plants in the ground, and existing plants transplanted and watered, everything was going according to plan — but there was a flaw in the plan.

PHOTOGRAPH BY CLIFF WHITE

It started with a modest objective: save the monarchs — all of them. I wanted my backyard to look like the monarch wintering grounds in the oyamel fir forests of Mexico. If time and resources allowed, my secondary objective was to create a good place for other butterflies, birds, bees, and the occasional small furry or scaly critter to hang out.

The plan was to convert my relatively small, central Missouri backyard into a natural space for the benefit of wildlife and the enjoyment of friends and family. With access to MDC's bird and habitat experts, turning my backyard into a 2,500-square-foot nature haven should have been child's play.

Going Au Naturel

"That's the big idea, right?" said State Ornithologist Sarah Kendrick. "If you can give up just a little bit of your lawn looking perfectly, immaculately manicured, you can help a lot of wildlife."

There are three adjectives that have never been used to describe my backyard: perfect, immaculate, and manicured. It's a bit of a mess to begin with, so why not put it to use attracting "a lot of wildlife." With any luck, I would have the added benefit of relaxing and enjoying nature with my morning coffee.

Step Away From the Shovel

Apparently, the first step in converting your lawn to a nature haven is to get your shovel and all the rest of your garden tools — and lock them away. Even though a landscape designed for nature is not as structured as a traditional lawn, it still requires planning, said Norman Murray, habitat chief of MDC's Wildlife Division.

"A lot of planning needs to go into that before you start randomly plopping down plants," Murray said. "Otherwise you're going to be very unhappy with the results."

Norman was talking to me, which seemed odd because I already had a perfectly good plan. As it turns out, it was for someone else's yard. Effective planning, he emphasized, starts with taking inventory of one's resources and



Although I was inspired by the great monarch migrations to Mexico, I knew my backyard would never look exactly like this. I had hoped, however, that my butterfly milkweed would draw more than a few takers.

desired outcomes.

"What are their objectives? What do they want? What are they looking for? What kind of elements are they wanting in their backyard as far as wildlife," he said. "What kind of feature-type plants are they looking for? What kind of landscape features are they wanting? And then, what do they have currently? What types of resources do they have in their yard? That determines what their possibilities are."



BUTTERFLY MILKWEED AND MONARCH CATERPILLAR

MEXICO MONARCHS: © ALBERTO LOYO | DREAMSTIME.COM.
MILKWEED: NOPPAOUL PAOTHONG

ROSE VERBENA: JIM RATHER; CLIFF WHITE

Nature on Your Balcony

Can you "landscape" for nature without land?

Even apartment dwellers with little more than a balcony or patio can still make their area nature friendly, according to Norman Murray, habitat chief of MDC's Wildlife Division.

"Containers are a great option," Murray

said. "The bigger the container the better. Rose verbena does spectacularly in a container."

The same concepts apply to balcony habitats as to your yard — choose your plants to fit your needs and resources (especially sun), and the addition of water will improve your results.

"You can even grow a little wetland in a



container," he said. "You can put a lot of the wetland plants like pickerel plant or scouring rush in a container, and even get frogs reproducing in it."

Here Comes the Sun

When it comes to resources, the most important is the sun, Murray said. The amount of sunlight an area receives dictates what types of plants will thrive there.

"A lot of the native wildflowers ... need at least six hours of sunlight," he said. "If you're in a woodland setting where you're not getting that, you need to rethink your plan. There are some wildflowers that grow in a woodland setting, but that's going to change what flowers you're going to put in."

Murray suggested keeping a sun diary to track how much sun hits each part of the yard during the peak growing season, which is roughly mid- to late-June. An hourly check of the yard would provide a good idea of which areas get sufficient sun for sun-loving plants and which areas require more shade-tolerant varieties. Such a formality seemed unnecessary to me, given my intimate knowledge of the backyard I've been mowing for 15 years.

Had I conducted a proper sun inventory, I would have learned that my planned planting area, which was so sunny on that October afternoon when Norman visited, would have been a better place to put a hammock than the sun-loving milkweed my monarch paradise required. My belated inventory, conducted 13 months after the first plants went in the ground, identified a sunny "sweet spot" about the size of my front doormat. In addition to being

significantly smaller than expected, it was on the opposite side of the yard from where I had already planted.

Plants: Choose Wisely

Attracting native wildlife is a job best suited for native plants. Natives are adapted to Missouri's climate and provide many animals, especially birds and pollinators, with important food and shelter, Kendrick said.

"Nearly all the birds you see in the summer are eating insects and feeding them to their young — that's a lot of bugs needed to keep birds going," she said. "Everything is connected — the more native plant diversity you can get in your backyard, the more insects and diversity you'll have, which means more

bird food and increased bird diversity."

In addition to choosing the right plants, it's important to pick the right plant providers. Nurseries that are part of the Grow Native! network specialize in plants that are native to Missouri. Even plants promoted as native from some retailers may ultimately do more harm than good, said Kendrick.

"A lot of people don't know that even some native plants they buy at a box store could be treated with neonicotinoids, which is in the seed," she said.

Neonicotinoids are systemic insecticides, which are important in intensive agricultural operations.

"It grows in the plant, and if an insect eats it, the insect dies," she continued. "A lot of people, who are just trying to do good and purchase plants from a store for birds and other wildlife, don't know they might be hurting insects unintentionally, which, again, are part of a food chain and are very important to birds and other wildlife."

When seeking the holy grail of plants for natural landscaping, Murray recommended identifying plants that meet several goals. Some nectar-producing plants prized by hummingbirds and butterflies have leaves that also serve as food for caterpillars and attract insects that become bird food. Some

Working with Grow Native! affiliated nurseries and MDC websites and publications took much of the uncertainty out of plant selection.





At first it seemed odd to be tearing out established bushes like these boxwoods (above left), but it was necessary in order to make room for the native, and much more versatile, shrubby St. John's wort (above right), which was teeming with pollinators within its second growing season.

This water feature (right), with its moving water, has become a magnet for birds. And who doesn't enjoy a spitting turtle?



berry-producing shrubs favored by birds for their fruit also provide blooms for pollinators and shelter for nesting birds.

"When I do landscaping, I look for multiple benefits — both visually and for wildlife — from each of my plant species," Murray said. "I can't afford to just get one benefit out of them, because I have little space. I want beauty, and I want two or three wildlife benefits from them."

Making room for these Swiss Army plants sometimes means removing existing single-purpose plants. For me, that involved ripping out all of the nonflowering, nonnative boxwood bushes and replacing them with shrubby St. John's wort, a flowering native that

attracts a variety of pollinators and, once mature, provides shelter.

Also, varying the selection of plants to include those that bloom at different times of the year will provide a constant nectar source for pollinators.

"Look at bloom seasons as you're picking them so that you have something blooming at different times," Murray said. "You want some early spring bloomers, some midseason bloomers, and some late bloomers."

Beyond Plants: Water and Hardscaping

A thoughtful variety of plants is a must, but a yard well-balanced for nature

should also include water, whether it's a simple birdbath or a more complicated in-ground feature with pumps and filters, Kendrick said.

"A water feature is also very important," she said. "It attracts a lot of birds, especially during migration. It doesn't have to be big. A bird bath is great, but moving water attracts many more birds."

Water features, such as small preformed ponds or ponds built with flexible liners, also provide opportunities for reptiles, amphibians, and mammals, Murray said. Varying the depths when using liners and creating access points when using preformed pools increase the feature's usefulness.

"As you build your water feature, I would put a variety of depths in there. Have some deeper parts because that's where your frogs are going to overwinter — deeper being 18 inches or a little deeper," he said. "Put a slanted log in there so they can crawl out."

Even a well-constructed water feature isn't going to serve all nature, so a variety of sources is preferable. Hummingbirds respond better to misters, and butterflies have special needs as well, he said.

"A little container of damp sand is a good puddling place for butterflies," he said. "They can't drink standing water. They have to sip water up through sand or mud."

While the right plants and water features can attract birds, butterflies, and other pollinators, several additional steps can make the area friendlier for small wildlife, Murray said. A simple brush pile or a decorative rock wall or pile can provide additional shelter for turtles, snakes, or rabbits, he said.

"That can be a good thing, depending on your objectives," he said.

Patience is a (Natural) Virtue

I didn't expect an overnight transformation, but I naively thought by the end of the first growing season, my spring-planted native plants, newly installed bluebird houses, and water feature would have resulted in a backyard busier than the nearby

Getting Started

Even after determining the existing resources — sunlight, existing plants, and natural shelter — and determining your goals — attracting pollinators, birds, or small mammals, or reptiles — it's still sometimes difficult to determine what plants and features to add to your landscape. MDC and the Missouri Prairie Foundation's Grow Native! program have a number of resources designed to help those looking to

transform their yards. Visit **grownative.org** for a searchable database of native plants, a directory of native plant nurseries, suggested plant groupings, and sample landscape designs.

Native Plants for Your Landscape is free to Missouri residents. This 12-page MDC publication outlines the planning and installation processes, identifies plant groupings based on desired outcomes, and provides sample landscape designs.

It's available at most MDC nature or conservation education centers. Anyone can access it online at **short.mdc.mo.gov/Zc8**. To receive a free copy by mail, email **pubstaff@mdc.mo.gov**.



school playground at recess. Because I initially skipped the sun survey, what I got was a number of underperforming milkweeds, rose verbenas, and cardinal flowers — and a new planting plan for this spring. My water feature is popular with the birds and the occasional chipmunk, and one of my two bluebird houses was occupied for at least one fledging. To get those initially imagined results, Murray advised one additional resource — patience.

"The native plants are going to live 20, 30, 50 years. They've got to get that

root established," he said. "They're all about, that first year or two, getting that root established. After they get that done, then they're going to bloom and produce for the long term." ▲

Larry Archer is Missouri Conservationist's associate editor and regular contributor of the magazine's monthly Places to Go section. He enjoys time outdoors and will be spending considerable time this spring implementing his new backyard planting plan.



Nature in my Backyard Timeline

SEPTEMBER 2016
Begin project with early research from MDC publications, "before" pictures

OCTOBER 2016
Meet with subject matter experts to discuss site; research plants, and draw preliminary planting plan. Kill off existing grasses in planting area

NOVEMBER 2016
Mark location of hardscape features; remove non-native bushes; **begin digging** for water feature

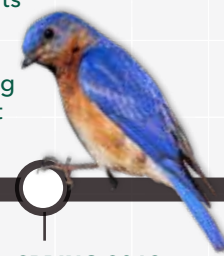


APRIL 2017
Build bluebird houses with neighbor, **Ken**

MAY 2017
Lay landscape fabric on planting area; **plant first round of natives**; install water feature; mulch planting area



JUNE-SEPTEMBER 2017
Wonder why plants aren't growing; realize planting area isn't receiving sufficient sunlight



SPRING 2018
Install bluebird houses and butterfly watering station; care for poorly placed and underperforming plants as best as possible.

JUNE 2018
Conduct sun survey (which should have preceded all other steps)

FALL-WINTER 2018
Draw **new planting plan** based on results of sun survey



SPRING 2019
Prepare beds and plant natives based on new planting plan

SUMMER 2019
Patiently await results of **new plantings**





This tree's root system was damaged when a driveway was installed several years ago, and then further stressed during the record drought of 2012. Trees in severe decline — like this one — often have large dead branches, numerous trunk sprouts, and insect borer damage. Unfortunately, trees in this condition cannot be saved and should be removed to prevent hazards to people and property.

PHOTOGRAPH BY CLIFF WHITE



What's **Killing** *My Tree?*

IT MAY NOT BE WHAT YOU THINK

by Robbie Doerhoff and Natalie Diesel

We love trees — especially the ones in our yards.

For many of us, trees bring back fond memories of tire swings, treehouses, and shaded backyard afternoons. We play in their fallen leaves in autumn, string festive lights on them in winter, and look forward to our trees waking up each spring. We want our trees to live forever, so when something doesn't look quite right, we become concerned.

Trees and people have at least one thing in common — both experience stress. Tree stress is often related to environmental conditions such as drought, extreme weather, and poor soil. Once weakened by stress, trees are more susceptible to serious insect and disease issues. However, much of what we notice, leaf galls and spots or light insect feeding, are only minor stressors for an otherwise healthy tree.

Unfortunately, trees growing in yards can suffer from a much more familiar cause of stress — us. We tend to overlook major stressors, like construction damage, soil compaction, and lawn care chemicals, which end up being the real tree killers. Even the fertilizing, mulching, and pruning we do to “help” our trees can cause serious problems if done improperly.

How can you help keep your trees healthy? The good news is that you can reduce tree stress by using good tree care practices such as proper watering, mulching, and pruning. Read on to learn more about good tree care and what may, or may not, be killing your tree.



Plant Native Trees!

Many tree species native to Missouri make great yard trees. Why? Native trees are well-adapted to our soils and climate, provide benefits to wildlife, and won't become invasive. There are many species to choose from, so it is important to consider the characteristics of your yard and select a tree that will thrive in those conditions. Be sure to plant your tree properly. Trees planted too deep do not grow well and may develop root issues in the future. For more information on selecting and planting native trees, visit mdc.mo.gov/trees-plants/tree-care.



Overcup oak: Large tree tolerant of wet or flood-prone soils; acorns provide winter food for deer and squirrels.



Black gum: Medium-sized tree with brilliant red fall color; fruits eaten by over 30 bird species.



Pawpaw: Small shade-loving tree that produces edible fruit in early fall; host for zebra swallowtail caterpillars.

What's *Not* Killing Your Tree

Leaf-Feeding Insects

Native leaf-feeding insects such as caterpillars and sawfly larvae rarely cause problems for healthy trees and are an important food source for wildlife. Outbreaks of these leaf-feeders occur periodically but are controlled by natural enemies within a year or two. However, insect injury in early spring or on evergreens can be more damaging and may require management.



..... Leaf Spots and Galls

Leaf spots and galls can be quite striking in appearance — and often alarming for a tree owner. Galls are typically formed as a response to insect activity. Leaf spots are commonly caused by fungi and are often brought on by wet or humid weather. The good news is that most galls and spots cause little damage to a healthy tree, so treatments are rarely needed.



Yellow-bellied Sapsucker

Yellow-bellied sapsuckers are small woodpeckers that feed on sap from shallow holes they drill in trees in the fall and winter. These holes, called sap wells, are often in groups or rows and may be round or rectangular. Healthy trees can callus over sapsucker injury in a few years.



Horned Oak Gall

Horned oak galls are tough, woody growths often found on pin oak branches. They are caused by a tiny, stingless wasp native to Missouri. These galls are unsightly and cause tree stress but aren't considered tree killers. Currently, no effective tree treatments are available, so practice good tree care to reduce stress on your tree.

Mulch

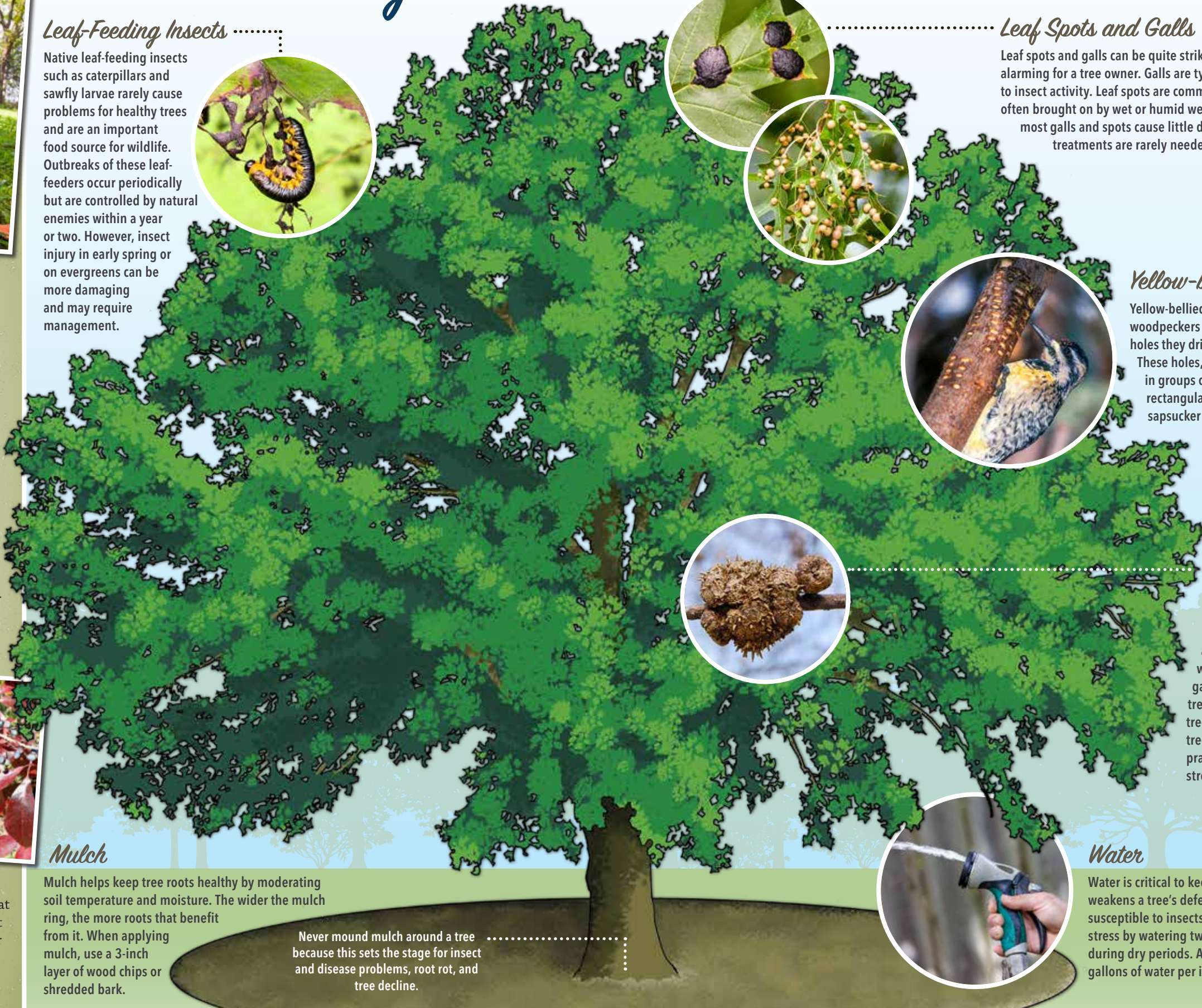
Mulch helps keep tree roots healthy by moderating soil temperature and moisture. The wider the mulch ring, the more roots that benefit from it. When applying mulch, use a 3-inch layer of wood chips or shredded bark.

Never mound mulch around a tree because this sets the stage for insect and disease problems, root rot, and tree decline.



Water

Water is critical to keeping a tree healthy. Drought weakens a tree's defenses, making it more susceptible to insects and diseases. Avoid tree stress by watering two to three times per month during dry periods. A good recommendation is 10 gallons of water per inch of trunk diameter.



TREE PLANTING FAMILY: DAVID STONNER; OVERCUP OAK, BLACK GUM, PAWPAW: MDC STAFF; TREE ILLUSTRATION: LES FORTENBERRY

SAWFLY LARVA: MDC STAFF; MAPLE TAR SPOT: STEVEN KATOVICH, USDA FOREST SERVICE; BUGWOOD.ORG; OAK PILL GALL: MDC STAFF; SAPSUCKER: JIM RATHER; HORNED OAK GALL: ROBBIE DOERHOFF; WATER: DAVID STONNER

What Is Killing Your Tree

Poor Pruning

Improper pruning practices, such as topping, can create stressed, hazardous trees with shortened lifespans. When done correctly, pruning is an important part of good tree care. Make pruning cuts just outside the branch collar, the area at the base of the branch specialized for callusing over wounds. Most pruning should be done in winter when trees are dormant. While tree wound spray is generally not recommended, it should be used if oaks are pruned in March through June to prevent oak wilt.

Hypoxylon Canker

Hypoxylon canker is a native fungal disease that commonly affects trees stressed by drought or construction damage. This disease causes dead areas under a tree's bark. Eventually, the bark falls off, revealing fungal mats that look like tan or gray paint. Trees with hypoxylon canker dry out quickly, making them brittle and potentially hazardous. Contact a certified arborist if you see signs of this disease on your tree. You can help prevent hypoxylon canker by watering your tree during drought.

Lawn Care Practices

What's good for grass isn't always good for trees. Many popular lawn care products can damage a tree's root system, causing tree stress and decline. Avoid using herbicides to control weeds or brush within the root zone of your tree. Turf fertilizers high in nitrogen can burn tree roots and cause unhealthy growth. Most trees need soil that is slightly acidic to properly absorb nutrients. Soil tests are affordable and easy to do, so have your soil analyzed before applying fertilizers or pH adjusters. If you hire a lawn care service, be sure to ask what products they use.

Root Damage

When planning construction activities, keep your trees in mind! Common construction practices often result in root damage that leads to tree death. Tree root systems extend far beyond the edge of the canopy, with most roots growing in the top 18 inches of soil. These shallow roots are damaged when heavy equipment compacts soil, reducing the availability of air and water. Adding soil around established trees can also suffocate root systems. Installing pavement or trenching near a tree can cut off a large number of roots. You may not see root damage, but affected trees often slowly decline and die within 10 years.

Insect Borers

Think of native insect borers as nature's recyclers, coming in to help break down dying trees. Borers tunnel into trees, leaving behind winding trails in the wood and holes in the bark. Unfortunately, insect borer activity can be a sign that your tree is stressed. You may be able to help your tree overcome borers through watering and practicing good tree care. Some insect borers can be effectively managed with an insecticide, but accurate pest identification and treatment timing are critical.

Be on the Lookout

Most people have heard of the emerald ash borer, an invasive wood-boring insect that was originally brought to Missouri in ash firewood. Unfortunately, this isn't the only tree killer that can hitch a ride with humans. New pests are introduced to the U.S. every year through global trade. Once established in the local environment, these pests are easily moved long distances by people. Read on to learn more about three pests that are currently threatening our trees. Don't be the one to accidentally bring these bad bugs to your neighborhood!

Asian Longhorned Beetle

- Travels in firewood and pallets
- Bores into many common yard trees — prefers maples
- Look for large round holes in tree bark



Gypsy Moth

- Travels on vehicles and outdoor gear
- Strips leaves from oaks and many other trees
- Look for tan, fuzzy egg masses



Spotted Lanternfly

- Travels on any smooth surface, from landscaping stone to patio furniture
- Sucks sap from many trees and plants
- Look for large spotted insects, often in groups



Tree Wounds

Tree bark isn't as tough as it looks. Even small wounds, like those caused by mowers and string trimmers, often lead to future problems. Decay-causing fungi gain entry through wounds and can create hollow areas that weaken a tree's structure over time. Mushrooms growing from the trunk or roots of your tree are a sign of internal decay. Trees with wounds or mushrooms are potentially hazardous and should be evaluated by a certified arborist.

Robbie Doerhoff is the MDC forest entomologist. She lives in Boone County where she enjoys gardening and mushroom hunting with her family. Natalie Diesel is the MDC forest pathologist. She is from Ste. Genevieve and enjoys all things outdoors, including annual trout fishing trips to Bennett Springs.

Coyotes going metro

ONCE ASSOCIATED WITH THE COUNTRYSIDE, THESE CUNNING CANINES ARE FINDING NEW DIGS DOWNTOWN

by Dan Zarlenga

A pleasant evening stroll through the Spanish-inspired architecture of Country Club Plaza, in the heart of Kansas City, might lead one to contemplate which shops to explore for a unique gift. Dinner afterward offers a choice of world-class eateries to consider, or perhaps a stop for a latte at a trendy java shop.

Amid these musings, a peculiar, high-pitched sound suddenly emerges through the urban bustle — something between a yelp, a whine, a howl, and an eerie laugh — raising hairs on the back of the neck. It's not at all something you would expect to hear.

Surely it can't be. But it is. The call of a coyote.

Scenes like this are becoming increasingly possible and even common in Missouri's metro areas. Coyotes, or *Canis latrans* as they are known in the scientific community, are moving in and taking up residence in cities across the state. It turns out that these creative canines take well to the urban lifestyle.



Joe DeBold is MDC's urban wildlife biologist for the Kansas City region, and he's seen video of coyotes captured by security cameras on Country Club Plaza.

"If they're there, you know they're pretty much everywhere, from dead center to the outskirts of town," he said.

On the other side of the state, a coyote made an extended appearance in St. Louis City's Tower Grove Park in the early months of 2010. It was dubbed "Gal" by popular media, and the *Riverfront Times* newspaper reported that the animal had its own Facebook page, boasting over 1,300 followers. Coyotes are routinely sighted all around St. Louis, like Forest Park and Wilmore Park, as well as Queeny and Jefferson Barracks county parks.

But why are coyotes moving into these urban environments? What draws them, and how can they survive in a place so alien to their traditional habitat? There are a couple traits that help coyotes fit in so well among humans.

Coyotes Aren't Picky Eaters

As omnivores, coyotes can sustain themselves on either plant material or meat. According to Tom Meister, MDC wildlife damage biologist for the St. Louis region, "Coyotes eat anything and everything and don't have a specialized diet. They can adapt to their surroundings because they don't mind eating whatever is available to them."

The coyote (*Canis latrans*) is becoming a common sight in Missouri's urban areas, often in downtown St. Louis and Kansas City. The intelligent and creative canines can adapt especially well to populated environments.

DeBold agrees. "What's being thrown at the coyote in urban areas is a giant buffet of prey. Within this urban area, you have a higher density of prey resources because people feed birds, squirrels, raccoons, and deer. This human feeding concentrates all these animals."

DeBold added that the higher density of people in urban areas and large venues like sporting events can concentrate food sources such as litter and dumpsters, which can influence wildlife behavior.

A study by the Urban Coyote Research Program analyzed over 1,400 scat samples from urban coyotes and discovered the most common food items were small rodents, which made up 42 percent of their diet. Deer and rabbit contributed about 20 percent each. The study also revealed that fruits comprised about 23 percent of what coyotes ate.

Human garbage can also be a source of nutrition for coyotes. Meister explains that each generation of urban coyotes is being trained by their parents how to hunt and feed. "They get taught by their parents that garbage is put out on this street for Wednesday morning, so that's where to eat Tuesday night," he said.



*Teaching their young brings up another trait coyotes possess — they are **surprisingly intelligent and resourceful.***

Coyotes Are Smart

Teaching their young brings up another trait coyotes possess — they are surprisingly intelligent and resourceful. DeBold says they've been referred to as the Einsteins of the wildlife community due to their remarkable ability to adapt to anything human society can throw at them. This intelligence allows coyotes to navigate and carve out territories from whatever patchwork of green spaces urban environments offer. These might include municipal parks, golf courses, cemeteries, storm water creeks, drainage ditches, suburban wooded common areas, and even subdivision yards. Meister said inventive coyotes can make their dens anywhere from tunnels under roads to holes dug in root wads.

Even houses and buildings aren't necessarily a deterrent to resourceful coyotes. "It's all structure, no different than a woodland," said DeBold. "Coyotes weave in and out and between those houses and still feel secure in the dark. They don't see it as a human home, they see it as a structure to walk around. It's all within the hunt for them."

Preventing Conflicts

Like any new neighbors, coyotes take some time to get used to. Fortunately, coyotes pose little threat to people. A 2009 study of coyote attacks on humans in the U.S. and Canada uncovered fewer than 150 such occurrences between 1960–2006. Most resulting

Though coyotes pose little threat to humans, issues can arise concerning pets. Coyotes have been known to attack dogs, often as a territorial response to what they perceive as another canine threat to their turf.

injuries were minor, with just a single bite to the victim. About one-third of the incidents involved people feeding the coyotes. A minor portion of cases were connected to rabid coyotes, or coyotes that were cornered or protecting their den and pups.

One concern regarding coyotes is pets. Urban coyotes have been shown to predate on common housecats, which may seem more like natural prey, such as rabbits and squirrels. That may sometimes be the case with toy dog breeds like Pekinese, for example. Coyotes have been known to attack and kill small dogs, but Meister says it more often has to do with innate canine competition. The coyote may see a dog as an interloper



COYOTE WITH PUP: MATT KNOTH/SHUTTERSTOCK; COYOTE WITH PUP: © BETTY4240 | DREAMSTIME.COM; COYOTE AND DOG: © AMELIA MARTIN | DREAMSTIME.COM

*“The coyote is one of those animals that if you have them in your environment and they’re healthy, you know overall that **the environment has to be healthy, too.**”*

Joe DeBold, MDC’s Urban Wildlife Biologist

on its territory. This is especially true if the dog is similar in size, like pointer and retriever breeds. Even smaller dogs, which can often have feisty or aggressive temperaments, can be perceived as threats if they charge or bark at a coyote.

Pet owners must be especially vigilant in areas where coyotes live. “The days of yesterday where you could just send your pet out the door and let it do its business for an hour is no longer,” said DeBold. “You go out there and be there with your cat or dog every time it goes outside, be right beside it. And that will most generally take away the threat. Because when coyotes attack a cat or dog, its usually not right at the feet of a human.”

Spring is a time to be extra vigilant. Coyotes typically breed in February and March. Females give birth to four or five pups about 60 days later. “Because food requirements increase dramatically during pup rearing, April through May is when conflicts between humans and urban coyotes are most common,” said Meister. At this time, coyotes are on the move more seeking food, and may act more aggressively toward any animal they see as potential competition, like family dogs.

Meister says you can also help the situation by not offering

The best way to coexist with coyotes is conditioning. Harassment measures will make them less likely to hang out near homes. Removing temptations from your yard, like pet food, will also give coyotes fewer reasons to come around.



COYOTE IN BACKYARD: S AND D AND K MASLOWSKI/FLPA/MINDEN PICTURES; COYOTE WITH MANGE: JIM RATHER

A Chupacabra?



Not likely. Both Meister and DeBold frequently get calls reporting strange, four-legged creatures sighted in urban areas. Some are attributed to the legendary Chupacabra, a hairless creature of folklore known for drinking the blood of livestock.

The culprit is most likely a microscopic mite that causes mange. These parasitic mites embed themselves in either skin or hair follicles in mammals, like coyotes. The visible symptoms are hair loss and emaciation.

“We definitely get some alarming calls when they see these coyotes and red foxes both that have mange. They see a skinny animal, and they’re not exactly sure what it is, since it has virtually no hair and fur left,” said DeBold. “The mange outbreaks have been pretty intense in Kansas City over several years.”

Meister suggests that the best way to prevent mange spreading to pets is to use a quality flea and tick repellent.

things in your yard that might give coyotes a reason to come around.

“Remove attractors like garbage cans, pet food, apples and pears dropped from trees, pumpkins, even bird feeders,” he said. While birdseed itself is not enticing to coyotes, any rodents or squirrels the seed might also attract are top coyote prey.

Installing a fence might also help. Fences should be at least 6 feet high and dug into the ground 6 inches deep, so the agile and resourceful canines cannot jump or dig under them.

Trapping or killing coyotes, however, has not shown to be successful. Traps designed to snare coyotes can likewise capture cats and dogs — or even children — making them unsafe for use in populated areas. Eliminating coyotes might even be counterproductive. Meister says research shows if a coyote is removed from a place where there’s food, water, and shelter, another will take its spot. Or, the population may even expand.

“If mom or dad are killed, they can’t control the young ones who may cause trouble and over breed,” he said. “With no dominant male or female to keep them under control, the problem could increase.” This could also cause a short-term surge in coyotes as the territory lines are redrawn by newcomers.

Good Harassment Makes Good Neighbors

“Gal,” the Tower Grove coyote, may have had 1,300 Facebook followers, but MDC wildlife biologists say the best way to exist with coyotes is to “unfriend” them.

“The goal is to educate coyotes that they’re not welcome,” emphasized Meister. In other words, homeowners need to show some tough love.

Research has established that coyotes can successfully be conditioned to stay away through consistent harassment and hazing. Meister says homeowners should take every opportunity to instill fear of humans in coyotes. Anytime a coyote should approach or be seen in the yard, Meister suggests doing everything possible to make it a negative experience for the animal. This could include yelling or making other loud,

threatening noises, throwing rocks and sticks, spraying high pressure garden hoses, or blowing air horns. Shaker cans filled with pennies, paintball guns, and fireworks (where permitted by local ordinances) can also be effective. If its encounter with humans is unpleasant, a coyote will be less likely to come back. The key is consistency, being visible, and making sure coyotes know that humans are the source of unpleasantness.

The City of Denver has reduced human-coyote conflicts by emphasizing hazing as the primary method for addressing coyote problems. Direct encounters between people and coyotes decreased more than 75 percent from 2009 to 2010, reported the Denver Department of Parks and Recreation.

Humans and Coyotes Living Together

As coyotes adapt increasingly well to urban environments, it’s a simple fact coyotes are now part of the metropolitan wildlife scene, and they are likely there to stay. But it is possible for people and coyotes to successfully coexist. Meister even points out some benefits these canine neighbors can offer.

“They help keep wildlife populations in check, act as scavengers and remove dead animals, help control rodent populations, and even eat rabbits, which might be eating your garden,” he said.

The presence of coyotes in an urban area says something even more significant, though. According to DeBold, they can be an indicator species as to the quality of the green space around us.

“The coyote is one of those animals that if you have them in your environment and they’re healthy, you know that overall the environment has to be healthy, too. It’s a positive sign, just like seeing deer and songbirds.”

With that in mind, it would seem Gal’s Facebook likes were well-deserved. ▲

Dan Zarlenga is MDC’s media specialist for the St. Louis Region.

Get Outside

in MARCH →

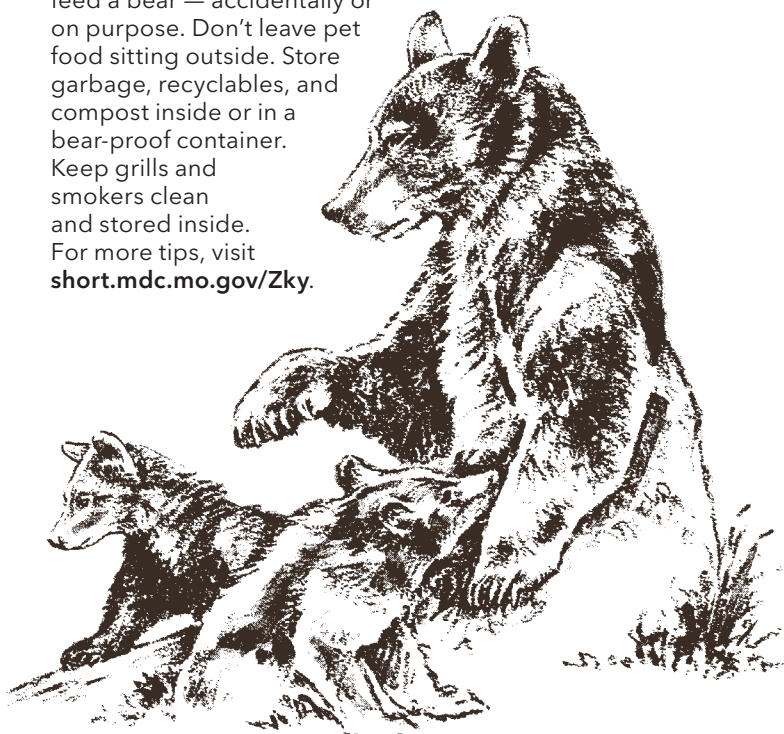
Ways to connect with nature



A Rare Treat Boom! That's the sound you will hear from the **greater prairie-chicken** through mid-April. To catch a glimpse of this rare bird, you will have to take a trip to certain northwest, southwest, and north-central portions of the state. It's worth the trip — there are fewer than 500 of these birds remaining. For more information, visit short.mdc.mo.gov/ZGu.

Bear-y Hungry

Solitary black bears and females with 1-year-old cubs are out of their dens and searching for food. If you live in bear country, be bear aware. Never feed a bear — accidentally or on purpose. Don't leave pet food sitting outside. Store garbage, recyclables, and compost inside or in a bear-proof container. Keep grills and smokers clean and stored inside. For more tips, visit short.mdc.mo.gov/Zky.



SOUTHEAST REGION

Native Plant & Garden Seminar

Saturday, March 9 • 8 a.m.-2:30 p.m.
Cape Girardeau Conservation Nature Center
2289 County Park Drive, Cape Girardeau, MO 63701
Registration required. Call 573-290-5218
Ages 14 and older

Native plants can be the main staple of your garden or property. They benefit wildlife, the environment, and gardeners so much. Workshops will include information on naturescaping best practices, propagating native plants, safe use of chemicals in the garden, creating a wildlife habitat, and the importance of pollinators. Gardeners and property owners alike will learn new things.



Find more events in your area at mdc.mo.gov/events

NORTHEAST REGION

Basics of Fly Tying

Saturday, March 16 • 9 a.m.-1 p.m.
Mark Twain Lake — M.W. Boudreaux Memorial Visitor Center
21629 Highway J, Perry, MO 63462
Registration required. Call 888-283-0364 by March 15
Ages 10 and older (15 years and younger must be accompanied by an adult)

If you have ever wanted to learn about tying flies but never had the opportunity, now is your chance. Join the Missouri Department of Conservation for a fun-filled morning learning the basics of tying flies. Three flies will be tied and more if time allows. All supplies will be provided, except reading glasses. Please bring those if needed.



Burning Daylight

Daylight saving time begins March 10. How will you use your extra daylight to get out and discover nature? If you need inspiration, visit short.mdc.mo.gov/ZSJ.

SOUTHWEST REGION

Spring Turkey Hunting Basics

Saturday, March 30 • 8:30-11:30 a.m.
Andy Dalton Shooting Range
4897 N. Farm Road 61
Ash Grove, MO 65604
Registration required.
Call 888-283-0364 by March 30 • All ages

Join us to discover the basics of turkey hunting in the spring. We will cover safety, scouting, calling, proper setup, shotgun ballistics, and much more.



Check out the new **Missouri Outdoor Recreational Access Program (MRAP)** properties offering hunting and fishing opportunities just for youth 16 and younger. The MRAP Youth-Only properties are located on private land and are dedicated to providing outdoor experiences for kids under the age of 16.

To learn more about MRAP, including the rules and regulations, locations of MRAP properties, and to download property maps, visit mdc.mo.gov/mrap.

Natural Events to See This Month

Here's what's going on in the natural world.



Female armadillos give birth to identical quadruplets



White bass begin spawning



Redbuds begin blooming



Badgers bear young through April



Spotted skunks breed through April

Places to Go

ST. LOUIS REGION

B.K. Leach Memorial Conservation Area

Flood plain pools draw waterfowl, wetland bird species

by Larry Archer

✦ It doesn't take long before a novice birder begins to suspect that B.K. Leach Memorial Conservation Area (CA) Manager Gary Calvert is simply making up names.

"We get some odd bird species," said Calvert, a wildlife management biologist. "We get a lot of short-eared owls. We'll have sand-hill cranes. This year we had black-bellied whistling ducks. We've had white-faced ibis. There's a lot of kind of unique wetland species that use the area."

But he's not making things up. This 4,307-acre area, located in the Mississippi River floodplain east of Elsberry in Lincoln County, is one of MDC's intensively managed wetlands, making it a waterfowl hunting destination in the winter and a birder's paradise in the spring, he said.

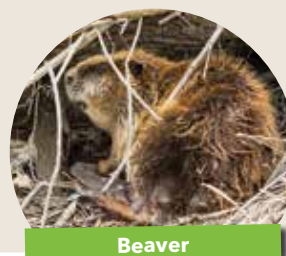
"The area is managed for waterfowl and a suite of wetland species," he said. "We manage for secretive marsh birds and that type thing also. We have nesting king rails on the area traditionally and nesting least bitterns, and we get a lot of other wetland species using the area."

The area also serves as a gateway for boaters and floaters looking to ply the Mississippi River, and the area's floodplain flatness offers photographers some great landscapes.



The sun sets over one of several pools within B.K. Leach CA. The area, located in Lincoln County, draws a wide variety of waterfowl and wetland bird species.

WHAT TO LOOK FOR WHEN YOU VISIT



Beaver



River otter



Northern watersnake



Least bittern



King rail



Common snapping turtle



B.K. LEACH MEMORIAL CONSERVATION AREA

consists of three tracts in Lincoln County totaling 4,307 acres. From Elsberry, take Highway 79 south 3 miles, then Route M east 3 miles to the main tract.

N39° 6' 28.08" | W90° 41' 49.92"

short.mdc.mo.gov/ZGf 636-441-4554

WHAT TO DO WHEN YOU VISIT

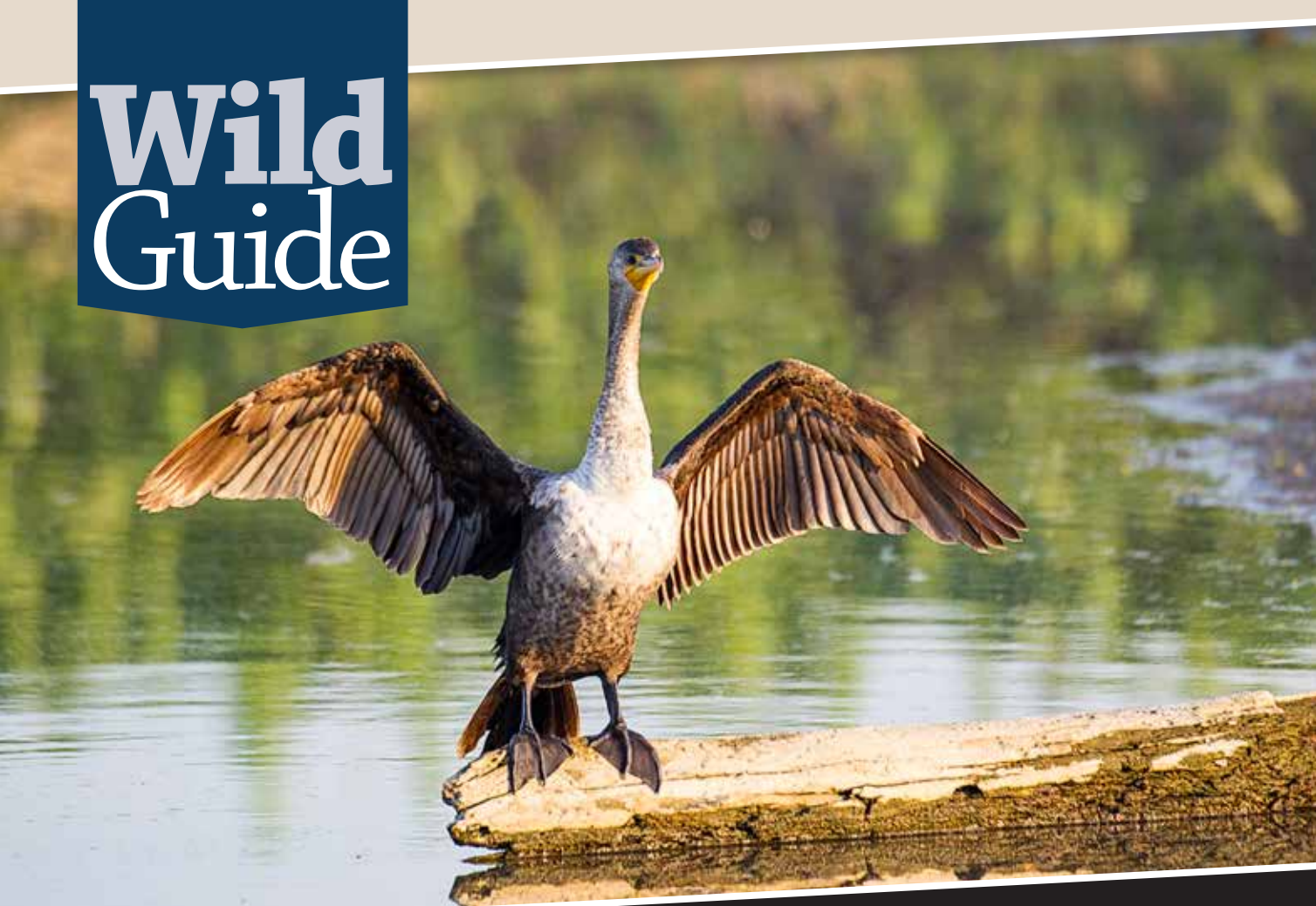
Bird-Watching Included in the National Audubon Society's Lincoln Alluvial Complex Important Bird Area (short.mdc.mo.gov/Zp2) and on the Great Missouri Birding Trail (short.mdc.mo.gov/Zp6). The eBird list of birds recorded at B.K. Leach Memorial CA is available at short.mdc.mo.gov/Zpu.

Hunting Deer Deer regulations are subject to annual changes. Please refer to the *Fall Deer and Turkey* booklet for current regulations.

Also **dove, quail, and rabbit**

Trapping Special-use permit required.

Waterfowl Hunting Morning draw. Waterfowl regulations are subject to annual change, so check the *2019 Waterfowl Hunting Digest* for current regulations.



Double-Crested Cormorant

Phalacrocorax auritus

Status

Common transient; accidental summer (breeding) resident; rare summer visitor; rare winter resident

Size

Length: 32 inches

Distribution

Statewide



Did You Know?

Cormorants have not always been well-regarded amongst humans. Historically, humans viewed the birds as competition for game fish, and until the early 1900s, shot and persecuted them, causing population declines. Then in the 1950s, pesticide use further reduced populations. Their numbers have rebounded, but some still regard them as pests.

It's common to find these big birds congregated on a submerged snag, wings outstretched, catching the sun's rays. They get their signature double crest from a pair of tufts located behind the eyes, which only appear during breeding season. Adult cormorants are black with an orange skin pouch below their long, hook-tipped bill. Immatures are brownish with a whitish breast.

LIFE CYCLE

Mated pairs build nests, measuring 1-3 feet wide, of sticks and grass on the ground, on rocks, or in treetops. Nests are typically built near other pairs in breeding colonies. Females lay one to seven eggs, which hatch in 25-28 days. The young leave the nest three to four weeks later. There are one or two broods annually.



FOODS

Cormorants dive underwater for fish, surfacing on occasion but remaining submerged except for the neck and head. To decrease buoyancy and facilitate underwater swimming, cormorants' feathers have few oils that repel water, so they become soaked as the bird swims. This is why cormorants typically stand with wings outstretched — they are allowing their feathers to dry.



ECOSYSTEM CONNECTIONS

Cormorant numbers in Lake Erie are linked to the presence of the invasive zebra mussel, a filter feeder that clarifies water, which helps cormorants hunt fish easier. Also, less plankton means fewer small fish, reducing fish numbers overall and increasing competition between people and cormorants.

NORADOL PAOTHONG

Outdoor Calendar

MISSOURI DEPARTMENT OF CONSERVATION



HUNTING

Bullfrogs, Green Frogs

June 30 at sunset-Oct. 31, 2019

Coyote

Restrictions apply during April, spring turkey season, and firearms deer season. Open all year

Crow

Nov. 1, 2018-March 3, 2019

Deer

Archery: Sept. 15-Nov. 15, 2019
Nov. 27, 2019-Jan. 15, 2020

Firearms:

- ▶ Early Youth Portion (ages 6-15): Nov. 2-3, 2019
- ▶ November Portion: Nov. 16-26, 2019
- ▶ Late Youth Portion (ages 6-15): Nov. 29-Dec. 1, 2019
- ▶ Antlerless Portion (open areas only): Dec. 6-8, 2019
- ▶ Alternative Methods Portion: Dec. 28, 2019-Jan. 7, 2020

Groundhog (woodchuck)

May 6-Dec. 15, 2019

Pheasant

Youth (ages 6-15): Oct. 26-27, 2019

Regular:

Nov. 1, 2019-Jan. 15, 2020

Quail

Youth (ages 6-15): Oct. 26-27, 2019

Regular:

Nov. 1, 2019-Jan. 15, 2020

Rabbit

Oct. 1, 2019-Feb. 15, 2020

Squirrel

May 25, 2019-Feb. 15, 2020

Turkey

Archery: Sept. 15-Nov. 15, 2019
Nov. 27, 2019-Jan. 15, 2020

Firearms:

- ▶ Youth (ages 6-15): April 6-7, 2019
- ▶ Spring: April 15-May 5, 2019
- ▶ Fall: Oct. 1-31, 2019

Waterfowl

See the Waterfowl Hunting Digest or visit short.mdc.mo.gov/ZZx for more information.

FISHING

Black Bass

Impounded waters and non-Ozark streams: Open all year

Bullfrogs, Green Frogs

June 30 at sunset-Oct. 31, 2019

Nongame Fish Giggling

Impounded Waters, sunrise to sunset: Feb. 1-Sept. 14, 2019

Paddlefish

Statewide: March 15-April 30, 2019

On the Mississippi River:

March 15-May 15, 2019
Sept. 15-Dec. 15, 2019

Trout Parks

Catch-and-Keep: March 1-Oct. 31, 2019

TRAPPING

Beaver, Nutria

Nov. 15, 2018-March 31, 2019

For complete information about seasons, limits, methods, and restrictions, consult the *Wildlife Code of Missouri* at short.mdc.mo.gov/Zib. Current hunting, trapping, and fishing regulation booklets are available from local permit vendors or online at short.mdc.mo.gov/ZZf.



Free MO Hunting and MO Fishing Apps

MO Hunting makes it easy to buy permits, electronically notch them, and Telecheck your harvest. MO Fishing lets you buy permits, find great places to fish, and ID your catch. Get both in Android or iPhone platforms at short.mdc.mo.gov/Zi2.

ILLUSTRATION: MARK RAITHEL



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It's March in Missouri. Days are getting longer and the first day of spring is just around the corner. Line up your friends and family and soak in the warmth of the sun! It's a great time to discover nature.

📷 by **David Stonner**